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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/651,323	08/28/2003	Ulrich Bonne	H16-16643	7801

7590 11/16/2004
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EXAMINER

BARBEE, MANUEL L

ART UNIT	PAPER NUMBER
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2857

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/651,323	BONNE ET AL.	
	Examiner	Art Unit	
	Manuel L. Barbee	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>8/28/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Oath/Declaration

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not state that the person making the oath or declaration believes the named inventor or inventors to be the original and first inventor or inventors of the subject matter which is claimed and for which a patent is sought.

It does not identify the mailing address of each inventor. A mailing address is an address at which an inventor customarily receives his or her mail and may be either a home or business address. The mailing address should include the ZIP Code designation. The mailing address may be provided in an application data sheet or a supplemental oath or declaration. See 37 CFR 1.63(c) and 37 CFR 1.76.

Specification

2. The disclosure is objected to because of the following informalities:

On page 8, line 6 of paragraph 28, delete "FIG 1", and insert --FIG. 2--.

On page 8, line 7 of paragraph 28, delete "225", and insert --224--.

On page 8, line 8 of paragraph 28, delete "FIG. 1", and insert --FIG. 2--.

On page 9, line 1 of paragraph 29, delete "FIG 1", and insert --FIG. 2--.

On page 11, line 3 of paragraph 35, delete "202", and insert --302--.

On page 13, line 1 of paragraph 41, delete "400", and insert --500--.

On page 13, line 2 of paragraph 43, delete "621", and insert --608--.

On page 14, line 2 of paragraph 45, delete "715", and insert --716--.

On page 14, line 4 of paragraph 45, delete "amplifier 722"; and insert --amplifier 724--.

On page 14, line 4 of paragraph 45, delete "Resistor 724", and insert --Resistor 725--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 4, 6-11, 15, 16, 18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Davey et al. (US Patent No. 5,161,410).

With regard to a locating a bridge circuit on a physical property sensor substrate where the bridge circuit includes a heating element, a plurality of resistors and at least one compensating resistor, as shown in claims 1 and 15, Davey et al. teach a mass flow sensor circuit on a substrate that includes resistors, a heating element and a sensor that compensates the heating element (col. 5, lines 6-17; col. 8, lines 16-42; Fig. 1, Fig. 3, resistors 102, 104, heating element 16, sensor 100). With regard to driving an imbalance of the bridge circuit to zero and a supply voltage to a level required to stabilize the heating element at a required temperature above ambient temperature and where the heating element comprises a thin-film heating material, as shown in claims 1 and 15, Davey et al. teach balancing the bridge circuit by keeping the thin film heating

element at a certain temperature above the ambient temperature sensed by a temperature sensor by using a differential amplifier to change the supply voltage of the bridge (col. 8, lines 16-42). With regard to dynamically compensating for a temperature coefficient for a temperature coefficient of resistance of the thin-film heating material, temperature dependence of the components on the bridge and temperature dependence of the physical property sensor, as shown in claims 1 and 15, Davey et al. teach balancing the heating element bridge circuit to compensate for changes in the ambient temperature which affect all components of the circuit (col. 8, line 16 - col. 9, line 20).

With regard to a Wheatstone Bridge circuit, as shown in claims 2 and 16, Davey et al. teach a wheatstone bridge (col. 8, lines 18-21; Fig. 3). With regard to increasing a resistance value of at least one compensating resistor to compensate for temperature dependence of a physical property value, as shown in claims 4 and 18, Davey et al. teach a temperature sensor that balances the heating element (col. 8, lines 16-42). With regard to measuring heater power and varying the constant temperature rise with the ambient temperature to compensate for the effects of the components, as shown in claims 6 and 20, Davey et al. teach changing the temperature of the heating element as the ambient temperature changes (col. 8, lines 16-42). With regard to minimizing the change in bridge voltage, as shown in claim 7, Davey et al. teach choosing resistors to stabilize and balance the bridge voltage (col. 8, lines 16-42). With regard to selecting the bridge voltage as a supply voltage generated by an amplification of the bridge circuit

imbalance, as shown in claim 8, Davey et al. teach amplifying the bridge voltage for the supply voltage (Fig. 3, amplifier 108).

With regard to the bridge voltage serving as a sensor output signal, as shown in claim 9, Davey et al. teach a bridge voltage that depends on the voltage of the heater element and the ambient temperature (Fig. 3). With regard to a front end analog circuit, as shown in claims 10 and 16, Davey et al. teach an analog sensor circuit (Fig. 3, col. 8, lines 32-42). With regard to a gas property sensor, as shown in claim 11, Davey et al. teach a gas property sensor (col. 4, lines 34-49).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davey et al. in view of Lee et al. (US Patent No. 6,346,703).

Davey et al. teach all the limitations of claim 1 upon which claim 3 depends and claim 15 upon which claim 17 depends. Davey et al. do not teach one other compensating resistor, as shown in claims 3 and 17. Lee et al. teach a three compensating resistors in a bridge circuit (col. 2, line 57 - col. 3, line 9). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the flow sensor, as taught by Davey et al., to include three compensating

resistors, as taught by Lee et al., because then resistance error would have been further reduced (Lee et al., col. 2, lines 21 - col. 3, line 9).

7. Claims 5, 12, 14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davey et al. in view of Boone et al. (US Patent No. 6,234,016).

Davey et al. teach all the limitations of claim 1 upon which claims 5 and 12 depend and claim 15 upon which claim 19 depends. Davey et al. do not teach the physical properties, as shown in claims 5 and 19, or a liquid property sensor, as shown in claim 12. Boone et al. teach measuring specific heat and measuring fluid properties (col. 6, lines 16-18). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the flow sensor, as taught by Davey et al., to include measuring specific heat and fluid properties, as taught by Boone et al., because then the sensor would have been functional for other measurements.

Claim 14 contains limitations similar to those in claims 1, 4, 5, 7 and 8 and is rejected on the same grounds.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Davey et al. in view of Boone (US Patent No. 5,237,523).

Davey et al. teach all the limitations of claim 1 upon which claim 13 depends. Davey et al. do not teach a solid property sensor, as shown in claim 13. Boone et al. teach a solid property sensor (col. 5, lines 24-35). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the flow sensor, as taught by Davey et al., to include a solid property sensor, as taught by Boone et al., because then the sensor would have been functional for other measurements.

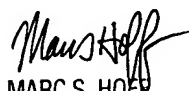
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manuel L. Barbee whose telephone number is 571-272-2212. The examiner can normally be reached on Monday-Friday from 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on 571-272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mlb


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